



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,123	12/23/2005	Yoshikatsu Tajima	282277US2PCT	5547

22850 7590 05/21/2008
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

CHAMBERS, TANGELA T

ART UNIT	PAPER NUMBER
----------	--------------

2617

NOTIFICATION DATE	DELIVERY MODE
-------------------	---------------

05/21/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No. 10/562,123	Applicant(s) TAJIMA ET AL.	
	Examiner TANGELA T. CHAMBERS	Art Unit 4141	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>March 21, 2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the preliminary amendment filed on 1/12/2006.
2. Claims 11-12 and 15-17 have been amended.
3. Claims 1-21 are pending.

Priority

4. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in the instant application on December 23, 2005.

Information Disclosure Statement

5. The IDS filed on March 21, 2006 has been acknowledged by the examiner. Only the partial English translations of references JP 2000-299704 and JP 5-35624 have been considered as the two references are written in Japanese. Only the abstracts of references WO 2004/102888 A1, WO 2004/109981 A1 and JP 2002-135304 have been considered as the remaining sections of the three references are written in Japanese. The Non-Patent Literature cited in the Other References Section was not considered as there was not a month and year provided for the references.

Specification

6. **The disclosure is objected to because of the following informalities:**
In the abstract, the acronym "MAC" should be spelled out with the acronym appearing in parenthesis.

Claim Objections

7. **The claims are objected to because of the following informalities:**
Claims 7 and 19 state that the channel information includes at least one of the features listed. Therefore the word 'and' should be changed to 'or' in the claim.

Claims 9 and 21 state that either one of the training symbols listed may have a part of its polarity inverted in order to obtain a special preamble pattern. Therefore the word 'and' should be changed to 'or' in the claim.

Claim 10 states that either one of the options listed may be used to extract reception data addressed to a local apparatus. Therefore the word 'and' should be changed to 'or' in the claim.

Claim 12 states that at least one of the options listed may be output as a result of the demodulation processing. Therefore the word 'and' should be changed to 'or' on the fourth line of the claim.

Claims 13-21 under 37 CFR 1.75 are cited as being substantial duplicates of claims 1-12. When claims in an application are duplicates or else are so close in content that they cover the same thing, despite a slight difference in wording, it is proper after allowing a claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim 13 states that either one of the options listed may be used to extract reception data addressed to a local apparatus. Therefore the word 'and' should be changed to 'or' on page 10, line 6 of the claim.

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-9 are rejected under 35 U.S.C. 101.

Claim 1 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 1 recites a receiver in the preamble but the body of the claim does not have a receiving unit for the reception of the transmission. Therefore, claim 1 is considered non-statutory because a useful,

concrete and tangible result is not produced, and is therefore not eligible for patent protection.

Claims 2-9 are dependant on claim 1, and are rejected under the same reason set forth in connection of the rejection of claim 1.

Claim Rejections - 35 USC § 112 Second Paragraph

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 6, 9-10, 13, 18 and 21 are rejected under 35 U.S.C. 112.

Claim 1 recites the limitations for a "transmitter" but is stated as being "applied to a radio communication system". It is unclear whether a device or a system is being claimed. It is suggested that claim 1 be rewritten with the words "is applied to a radio communication system" deleted from the claim.

Claim 6 is dependant on claim 1, a device claim, but recites the limitations "belonging to the radio communication system". It is unclear whether a device or a system is being claimed. It is suggested that claim 6 be rewritten with the words "belonging to the radio communication system" deleted from the claim.

Claim 9 recites the limitations for a "transmitter" but states "a wireless local-area-network is used as the radio communication system ". It is unclear whether a device or a system is being claimed. It is suggested that claim 9 be rewritten with the words "as the radio communication system" deleted from the claim.

Claim 10 recites the limitations for a "receiver" but is stated as being "applied to a radio communication system" and receiving a transmission "in the radio communication system". It is unclear whether a device or a system is being claimed. It is suggested that claim 10 be rewritten with all references to a radio communication system deleted from the claim.

Claim 13 recites the limitations for a "radio communication apparatus" but is stated as being "applied to a radio communication system" and communicating "in the radio communication system". It is unclear whether a device or a system is being claimed. It is suggested that claim 13 be rewritten with all references to a radio communication system deleted from the claim.

Claim 18 recites the limitations for a "radio communication apparatus" but is stated as having channels belonging "to the radio communication system". It is unclear whether a device or a system is being claimed. It is suggested that claim 18 be rewritten with the words "belonging to the radio communication system" deleted from the claim.

Claim 21 recites the limitations for a "radio communication apparatus" but states "a wireless local-area-network is used as the radio communication system". It is unclear whether a device or a system is being claimed. It is suggested that claim 21 be rewritten with the words "as the radio communication system" deleted from the claim.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 and 5-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Gan et al (Gan) (US Patent Publication No. 2002/0136268 A1).

As per claim 1, Gan discloses:

- ***A transmitter that is applied to a radio communication system, and transmits a radio frame to a receiver using at least one available channel,*** (Gan, Page 2, Paragraphs [0020]-[0021], "The communications device includes a transceiver

that is communicatively coupled to the memory and that is configured to transmit and receive, based on the identification data, over the set of channels[.]”).

- ***a transmission media-access-control unit that divides, when the transmitter transmits data using two or more channels, the data into number of applying channels to be used, and generates transmission data for each of the channels using divided data;*** (Gan, Abstract, Page 1, Paragraph [0006] and Page 2, Paragraphs [0019]-[0021], “The communications device includes a transceiver that is communicatively coupled to the memory and that is configured to transmit and receive, based on the identification data, over the set of channels, according to a frequency hopping protocol.”).
- ***a radio-frame generating unit that generates a radio frame that contains each of the transmission data;*** (Gan, Page 2, Paragraph [0020], “The communications device includes a processor for generating a measurement of channel performance based on receiving a packet from another device and transmitting another packet to the other device that contains data indicating the measurement of channel performance.”).
- ***a transmission applying-channel notifying unit that inserts channel information for identifying a channel into each radio frame,*** (Gan, Page 10, Paragraph [0143]).
- ***the transmitter transmits each radio frame containing the channel information.*** (Gan, Page 2, Paragraph [0021], Page 5, Paragraph [0081] and FIG. 4, Page 10, Paragraphs [0142]-[0143], “FIG. 4 is a block diagram that depicts a good channel packet 400 sent by a master to slaves to identify a set of selected channels, according to an embodiment of the invention.”).

As per claim 2, the rejection of claim 1 is incorporated and further Gan discloses:

- ***the transmission applying-channel notifying unit inserts the channel information into an unused area of transmission data generated by the transmission media-access-control unit.*** (Gan, FIG. 4, Page 10, Paragraphs [0140] and [0142]-[0146]), Gan teaches transmitting channel information within a channel

packet.

As per claim 3, the rejection of claim 1 is incorporated and further Gan discloses:

- ***the transmission applying-channel notifying unit inserts the channel information into a preamble of the radio frame.*** (Gan, FIG. 4, Page 6, Paragraph [0097] and Page 7, Paragraphs [0110]-[0111]), Gan teaches transmitting channel information within the preamble.

As per claim 5, the rejection of claim 1 is incorporated and further Gan discloses:

- ***the radio-frame generating unit includes an encoding unit that encodes the transmission data contained in the radio frame,*** (Gan, Page 8, Paragraphs [0121]-[0122]).
- ***the transmission applying-channel notifying unit inserts the channel information into an encoding-unit initializing section for initializing the encoding unit within the radio frame,*** (Gan, FIG. 4 and Page 10, Paragraphs [0142]-[0146], “Good channel data 450 is part of the payload portion of good channel packet 400 and identifies the selected set of good communications channels to be used by the participants of the communications network. Good channel data 450 may be encoded, such as by using a 1/3 FEC coding scheme[.]”).
- ***the radio-frame generating unit initializes the encoding unit at a timing when an input of a pattern of the encoding-unit initializing section to the encoding unit is completed.*** (Gan, FIG. 4 and Page 10, Paragraphs [0142]-[0146], “By encrypting the good channel data, even if the MAC address is known, the selection by the master of the channels to use and then transmitting those selected channels to other participants in an encoded format precludes other entities from working out the hopping sequence merely by knowing the MAC address.”).

As per claim 6, the rejection of claim 1 is incorporated and further Gan discloses:

- ***the transmission media-access-control unit checks a reception state of a plurality of channels belonging to the radio communication system, and***

determines the applying channel based on a result of the check. (Gan, Page 7, Paragraphs [0106]-[0108], Page 8, Paragraphs [0126]-[0128] and Page 10, Paragraph [0140], "According to another embodiment of the invention, the set of communications channels is selected based on one or more selection criteria, and data that indicates the selected set of channels is sent to other participants of the communications system.").

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 10-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamaura et al (Yamaura) (US Patent Publication No. 2003/0224731 A1).

As per claim 10, Yamaura discloses:

- ***A receiver that is applied to a radio communication system, and receives a radio frame from a transmitter in the radio communication system using at least one available channel,*** (Yamaura, Abstract and Page 7, Paragraphs [0096]-[0097], "The signal transmitted from the base station is received (in the form of electromagnetic wave) by the antenna 223. This signal is separated from the transmitting signal from the terminal station by the antenna multiplexer 222, and the separated signal enters the RF receiver 330.").
- ***a receiving unit that generates reception data by performing a predetermined reception processing on the radio frame received from the***

channels; (Yamaura, Fig. 32, Page 2, Paragraphs [0020]-[0022] and Fig. 6, Page 8, Paragraphs [0100]-[0101], “The output from 342 enters the received data processing unit 343, which outputs data with the frame structure and slot structure (for transmission through the radio channel) removed, if it judges that there are no errors in the result of CRC checking of received blocks.”).

- ***a reception applying-channel notifying unit that extracts reception data addressed to a local apparatus based on either one of information extracted by the reception processing and channel information contained in the reception data;*** (Yamaura, Page 16, Paragraph [0197] and Page 17, Paragraphs [0204] and [0209]), Yamaura teaches performing reception processing on data addressed to a local apparatus (terminal station) in order to extract data.

- ***a reception media-access-control unit that generates a reception frame by reassembling an original transmission frame from the reception data extracted by the reception applying-channel notifying unit.*** (Yamaura, Fig. 6 and Page 7, Paragraph [0092], “If necessary, it receives from the control unit 202 communication control data to be transmitted to another OFDM radio equipment (base station), which is the called party of radio communication (not shown), and after multiplexing, it forms and outputs the frame and slot structure for transmission through the radio channel.”).

As per claim 11, the rejection of claim 10 is incorporated and further Gan discloses:

- ***the receiving unit executes a descramble processing as the predetermined reception processing, and outputs an initial value extracted by the descramble processing to the reception applying-channel notifying unit.*** (Yamaura, Page 2, Paragraph [0022] and Page 8, Paragraph [0101], “The output from the decoder 258 enters the descrambler 259, which performs descrambling as the inverse conversion of the scrambling performed in the transmitting end.”).

As per claim 12, the rejection of claim 10 is incorporated and further Gan discloses:

- ***the receiving unit executes a demodulation processing as the predetermined reception processing, and outputs at least one of a preamble***

generated by the demodulation processing and data of an encoding-unit initializing section contained in demodulated data to the reception applying-channel notifying unit. (Yamaura, Page 2, Paragraphs [0020]-[0021] and Page 8, Paragraph [0100], "The output from the equalizer 255 enters the demodulator 256, which performs signal point judgment and outputs the estimated value of received bit. The output from 256 enters the deinterleaver 257, which performs deinterleaving to rearrange the string of coded bits according to a prescribed rule. The output from 257 enters the decoder 258, which decodes the error correction code given by the transmitting end.").

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gan et al, (Gan) (US Patent Publication No. 2002/0136268 A1), in view of Bender et al (Bender) (US Patent Publication No. 2003/0012174 A1).

As per claim 4, the rejection of claim 1 is incorporated and further Gan discloses:

- ***the transmission applying-channel notifying unit notifies the channel information to the radio-frame generating unit, when the radio-frame generating unit generates the radio frame using the channel information,*** (Gan, FIG. 4, Page 10, Paragraphs [0140] and [0142]-[0146]).

Gan does not specifically disclose:

- ***the radio-frame generating unit executes a predetermined transmission processing on each transmission data, and uses the channel information for an initial value of a scramble processing as one of the transmission processing, when generating the radio frame.*** However, Bender in an analogous art discloses the above limitation. (Bender, Pages 4-5, Paragraph [0047] and FIG. 10, Page 7, Paragraphs [0074]-[0076]), Bender teaches channel information being used in the preamble as part of a scramble process.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Bender into the device of Gan to use the channel information for the initial value of a scramble processing. The modification would be obvious because one of ordinary skill in the art would want a device that would be able enable synchronization of the access terminal and ensure the packet was received correctly in a secure manner. (Bender, Page 4, Paragraph [0047] and Page 5, Paragraphs [0054]-[0055]).

Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gan et al, (Gan) (US Patent Publication No. 2002/0136268 A1), in view of Ma et al (Ma) (US Patent Publication No. 2003/0072255 A1).

As per claim 7, the rejection of claim 1 is incorporated; however Gan does not specifically disclose:

- ***the channel information includes at least one of an identical frame mark for identifying whether a radio frame received by the receiver is addressed to a local apparatus,*** However, Ma in an analogous art discloses the above limitation. (Ma, Page 5, Paragraph [0090], Page 6, Paragraph [0112] and Pages 7-8, Paragraphs [0124]-[0125]), Ma teaches an identical frame mark as channel information.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Ma into the device of Gan to have

channel information that includes at least one identical frame mark. The modification would be obvious because one of ordinary skill in the art would want a way to enable synchronization and identify the start of a frame. (Ma, Page 6, Paragraph [0112]).

- ***applying-channel-number information indicating a channel number of the applying channel.*** (Gan, Page 11, Paragraphs [0151]-[0155], “According to another embodiment of the invention, after a participant has received the set of selected communications channels, the participant stores data that indicates the new set of selected channels. For example, in a Bluetooth or IEEE 802.15.1 FH communications system, each participant has a selection kernel that addresses a register. The output of the kernel is a set of addresses for each slot in the register, while the content of the slot in the register is a channel number.”).

As per claim 8, the rejection of claim 7 is incorporated and further Gan discloses:

- ***the applying-channel-number information includes information indicating an order of transmission frames generated by the transmission media-access-control unit by dividing transmission data.*** (Gan, Page 6, Paragraphs [0089]-[0092], “Packet header 320 contains control information, such as the origination and destination address of the packet, the type of packet, and the priority level for the packet.”).

Claims 9, 13-14, and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gan et al, (Gan) (US Patent Publication No. 2002/0136268 A1), in view of Yamaura et al (Yamaura) (US Patent Publication No. 2003/0224731 A1).

As per claim 9, the rejection of claim 3 is incorporated and further Gan discloses:

- ***when a wireless local-area-network is used as the radio communication system,*** (Gan, Page 5, Paragraph [0078]).

Gan does not specifically disclose:

- ***the channel information to be inserted into the preamble is a special preamble pattern obtained by inverting a polarity of a part of either one of a short training symbol and a long training symbol that constitute a preamble of the wireless local-area-network frame.*** However, Yamaura in an analogous art discloses the above limitation. (Yamaura, Page 11, Paragraphs [0129]-[0130], Page 12, Paragraph [0145] and Page 17, Paragraph [0205]), Yamaura teaches inverting the polarity of a wireless local area network symbol.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Yamaura into the device of Gan to invert the polarity of a symbol within a wireless local area network. The modification would be obvious because one of ordinary skill in the art would want a way to readily produce the cross relation waveform while eliminating the DC offset. (Yamaura, Page 11, Paragraph [0130]).

Claim 13 is rejected under the same reasons set forth in connection of the rejection of claim 1; however, Gan does not specifically disclose:

- ***a receiving unit that generates reception data by performing a predetermined reception processing on the radio frame received from the channels;*** (Yamaura, Fig. 32, Page 2, Paragraphs [0020]-[0022] and Fig. 6, Page 8, Paragraphs [0100]-[0101]).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Yamaura into the device of Gan to perform reception processing on the radio frame. The modification would be obvious because one of ordinary skill in the art would want a way to decipher transmitted information which is encoded or scrambled in order to understand the information received.

- ***a reception applying-channel notifying unit that extracts reception data addressed to a local apparatus based on either one of information extracted by the reception processing and channel information contained in the reception data;*** (Yamaura, Page 16, Paragraph [0197] and Page 17, Paragraphs [0204] and [0209]).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Yamaura into the device of Gan to extract reception data addressed to an apparatus. The modification would be obvious because one of ordinary skill in the art would want a way to retrieve information contained in data that is transmitted to an apparatus.

- ***a reception media-access-control unit that generates a reception frame by reassembling an original transmission frame from the reception data extracted by the reception applying-channel notifying unit.*** (Yamaura, Fig. 6 and Page 7, Paragraph [0092]).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Yamaura into the device of Gan to reassemble a transmission frame from the data extracted. The modification would be obvious because one of ordinary skill in the art would want a way to combine data into a frame and slot structure in order to transmit it through the radio channel. (Yamaura, Page 7, Paragraph [0092]).

As per claim 14, the rejection of claim 13 is incorporated. Claim 14 is rejected under the same reasons set forth in connection of the rejection of claim 2, and Gan further discloses:

- ***the reception applying-channel notifying unit extracts the channel information from the reception data.*** (Gan, Page 2, Paragraphs [0019]-[0021], "The communications device includes a transceiver that is communicatively coupled to the

memory and that is configured to transmit and receive, based on the identification data, over the set of channels, according to a frequency hopping protocol.”).

As per claim 17, the rejection of claim 13 is incorporated. Claim 17 is rejected under the same reasons set forth in connection of the rejection of claim 5, and further Yamaura discloses:

- ***the receiving unit executes a demodulation processing as the predetermined reception processing, and outputs data of an encoding-unit initializing section contained in demodulated data to the transmission reception applying-channel notifying unit.*** (Yamaura, Page 2, Paragraphs [0020]-[0021] and Page 8, Paragraph [0100]).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Yamaura into the device of Gan to demodulate and output encoded data to a transceiver. The modification would be obvious because one of ordinary skill in the art would want a way to perform processing and error correction encoding on received signals before transmitting. (Yamaura, Page 7, Paragraphs [0092]-[0094] and Page 8, Paragraphs[0100]-[0101]).

As per claim 18, the rejection of claim 13 is incorporated. Claim 18 is rejected under the same reasons set forth in connection of the rejection of claim 6.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gan et al, (Gan) (US Patent Publication No. 2002/0136268 A1), in view of Bender et al (Bender) (US Patent Publication No. 2003/0012174 A1) and in further view of Yamaura et al (Yamaura) (US Patent Publication No. 2003/0224731 A1).

As per claim 15, the rejection of claim 13 is incorporated. Claim 15 is rejected under the same reasons set forth in connection of the rejection of claim 4, and further Yamaura discloses:

- ***the receiving unit executes a descramble processing as the predetermined reception processing, and outputs an initial value extracted by the descramble processing to the reception applying-channel notifying unit.*** (Yamaura, Page 2, Paragraph [0022] and Page 8, Paragraph [0101]).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Yamaura into the device of Gan and Bender to use execute a descramble process and output an initial value. The modification would be obvious because one of ordinary skill in the art would want a way to perform an inverse conversion of the scrambling performed at the transmitting end. (Yamaura, Page 2, Paragraph [0022]).

Claims 16 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gan et al, (Gan) (US Patent Publication No. 2002/0136268 A1), in view of Yamaura et al (Yamaura) (US Patent Publication No. 2003/0224731 A1) and in further view of Terrier (US Patent Publication No. 2004/0179485 A1).

As per claim 16, the rejection of claim 13 is incorporated. Claim 16 is rejected under the same reasons set forth in connection of the rejection of claim 3, however, neither Gan nor Yamaura specifically disclose:

- ***the receiving unit executes a demodulation processing as the predetermined reception processing, and outputs a preamble generated by the demodulation processing to the reception applying-channel notifying unit***

However, Terrier in an analogous art discloses the above limitation. (Terrier, Page 4, Paragraphs [0038]-[0040], "The resulting data from the demodulated and de-scrambled signal is then feed out by synchronous serial interface to MAC 10. The transmission process begins with MAC 10 activating BBP 12 for transmission. BBP 12 generates a Preamble and a Header, then begins to clock the Transmit Data in from BBP 12.")

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Terrier into the device of Gan and Yamaura to output a preamble generated by demodulation processing. The modification would be obvious because one of ordinary skill in the art would want a way to permit the synchronization, transmission and reception of data along the network without assistance from external units. (Terrier, Abstract and Page 4, Paragraph [0046]).

As per claim 21, the rejection of claim 16 is incorporated. Claim 21 is rejected under the same reasons set forth in connection of the rejection of claim 9, and further Yamaura discloses:

- ***the channel information to be inserted into the preamble is a special preamble pattern obtained by inverting a polarity of a part of either one of a short training symbol and a long training symbol that constitute a preamble of the wireless local-area-network frame.*** (Yamaura, Page 11, Paragraphs [0129]-[0130], Page 12, Paragraph [0145] and Page 17, Paragraph [0205]), Yamaura teaches inverting the polarity of a wireless local area network symbol.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Yamaura into the device of Gan and Terrier to invert the polarity of a symbol within a wireless local area network. The modification would be obvious because one of ordinary skill in the art would want a way to readily produce the cross relation waveform while eliminating the DC offset. (Yamaura, Page 11, Paragraph [0130]).

Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gan et al, (Gan) (US Patent Publication No. 2002/0136268 A1), in view of Yamaura et al (Yamaura) (US Patent Publication No. 2003/0224731 A1) and in further view of Ma et al (Ma) (US Patent Publication No. 2003/0072255 A1).

As per claim 19, the rejection of claim 13 is incorporated; however, neither Gan nor Yamaura specifically disclose:

- ***the channel information includes at least one of an identical frame mark for identifying whether a radio frame received by the receiver is addressed to a local apparatus and applying-channel-number information indicating a channel number of the applying channel*** However, Ma in an analogous art discloses the above limitation. (Ma, Page 5, Paragraph [0090], Page 6, Paragraph [0112] and Pages 7-8, Paragraphs [0124]-[0125]), Ma teaches an identical frame mark as channel information.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Ma into the device of Gan and Yamaura to have channel information that includes at least one identical frame mark. The modification would be obvious because one of ordinary skill in the art would want a way to enable synchronization and identify the start of a frame. (Ma, Page 6, Paragraph [0112]).

As per claim 20, the rejection of claim 19 is incorporated and further Gan discloses:

- ***the applying-channel-number information includes information indicating an order of transmission frames generated by the transmission media-access-control unit by dividing transmission data.*** (Gan, Page 6, Paragraphs [0089]-[0092]).

Conclusion

13. The prior art not relied upon but considered pertinent to applicant's disclosure is made of record and listed on form PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TANGELA T. CHAMBERS whose telephone number is 571-270-3168. The examiner can normally be reached Monday through Thursday, 8:30am-6pm Eastern Time.

Art Unit: 4141

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chameli Das, can be reached at 571-270-1392. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tangela T. Chambers

Patent Examiner

Art Unit 4141

April 11, 2008

/CHAMELI C. DAS/

Supervisory Patent Examiner, Art Unit 4141